

COMPLETE SET OF PENDING CLAIMS

1-8. (Cancelled)

9. (Currently Amended) An apparatus for cleaning wafer boxes ~~used for holding or carrying wafers~~, comprising:

a rotor within a chamber, with the rotor having a plurality of compartments for holding wafer boxes;

a wafer box in one or more of the compartments;

an array of nozzles arranged to spray ~~fluid~~ gas or de-ionized water onto a box on the rotor;

a mixer connected by a fluid line to one or more of the nozzles;

a de-ionized water inlet line for providing de-ionized water to the mixer;

a detergent source;

a detergent injection line connecting the detergent source to the mixer;

and

a metering pump in the detergent injection line for pumping detergent from the detergent source to the mixer at a controllable pumping rate.

10. (Original) An apparatus according to Claim 9 further comprising a housing around the chamber.

11. (Previously Presented) An apparatus according to Claim 9 further comprising a boost pump connected to the water source for providing a desired inlet water pressure to the water inlet line.

12. (Cancelled)

13. (Cancelled)

14. (Previously Presented) An apparatus according to Claim 9 further comprising a recirculation line connected between the water inlet line and a water source for providing a recirculation path for water back to the water source.

15. (Previously Presented) An apparatus according to Claim 9 wherein the mixer comprises a mixing control valve for mixing the water and detergent.

16. (Currently Amended) An apparatus for cleaning media carriers, comprising:

a rotor within a chamber;

a plurality of carrier holding positions on or in the rotor;

a media carrier in one or more of the carrier holding positions;

a spray manifold having nozzles in the chamber arranged to spray fluid gas or de-ionized water towards the rotor;

a control valve connected by a fluid line to the spray manifold;

a de-ionized water inlet line for providing de-ionized water to the control valve;

a detergent source;

a detergent injection line connecting the detergent source to the control valve;

a metering pump associated with the detergent injection line; and

means for controlling a pumping rate of the metering pump to produce a desired detergent concentration in the detergent/de-ionized water mixture provided to the spray manifold.

17. (Previously Presented) An apparatus according to Claim 16 further comprising a flow meter associated with the water inlet line for measuring a flow rate of water provided to the control valve.

18. (Previously Presented) An apparatus according to Claim 16 wherein the control valve comprises a mixing control valve for mixing the detergent and the water.

19. (Cancelled)

20. (Previously Presented) An apparatus according to Claim 16 further comprising a recirculation line connected between the water inlet line proximate the control valve and a water source for providing a recirculation path for water back to the water source.

21. (Cancelled)

22. (Previously Presented) An apparatus according to Claim 16 wherein the metering pump comprises a positive displacement diaphragm pump, and wherein said means for controlling a pumping rate of the metering pump comprises means for adjusting pumping speed.

23. (Previously Presented) An apparatus according to Claim 22 wherein said means for controlling pumping rate of the metering pump further comprises means for adjusting pump stroke length.

24. (Previously Presented) An apparatus for cleaning flat media carriers, comprising:

a rotor mounted to spin within a chamber;

an array of nozzles arranged to spray a mixture of water and a cleaning solution toward the rotor;

a control valve connected by a fluid line to one or more of the nozzles;

a water inlet line for providing water to the control valve;

a cleaning solution source;

a cleaning solution supply line connecting the cleaning solution source to the control valve;

a metering pump associated with the supply line for pumping cleaning solution from the cleaning solution source to the control valve at a controllable pumping rate; and

a return line connecting the supply line and the cleaning solution source for providing a return path for cleaning solution back to the cleaning solution source.

25. (Currently Amended) An apparatus for cleaning media carriers, comprising:

a rotor mounted to spin within a chamber;

a spray manifold having nozzles arranged to spray a mixture of water and a cleaning solution towards the rotor;

a control valve connected by a fluid line to the spray manifold;

a water inlet line for providing water to the control valve;

a cleaning solution source;

a cleaning solution supply line connecting the cleaning solution source to the control valve;

a return line connected between the cleaning solution supply line and the cleaning solution source;

a metering pump associated with the cleaning solution supply line; and

means for controlling pumping rate of the metering pump to produce a desired cleaning solution concentration in the cleaning solution/water mixture provided to the spray manifold.

26. (Currently Amended) An apparatus for cleaning flat media carriers, comprising:

a rotor rotatably mounted within a chamber;

a plurality of spaces on the rotor for holding a carrier;

a carrier in one or more of the spaces;

a plurality of nozzles arranged to spray a mixture of de-ionized water and a cleaning solution toward the rotor;

a mixing valve connected by a fluid line to one or more of the nozzles;

a de-ionized water line for providing de-ionized water to the mixing valve;

a cleaning solution source;

a supply line connecting the cleaning solution source to the mixing valve;

and

a pump associated with the supply line for pumping cleaning solution from the cleaning solution source to the mixing valve at a controllable pumping rate.

27. (Previously Presented) An apparatus for cleaning wafer carriers, comprising:

a chamber;

a rotor rotatably supported in the chamber;

a plurality of carrier holding positions on the rotor;

a plurality of outer liquid spray nozzles arranged to spray inwardly toward the rotor;

a plurality of inner fluid spray nozzles arranged to spray outwardly toward the rotor;

a control valve connected by a fluid line to one or more of the spray nozzles;

a water inlet line for providing water to the control valve;

a cleaning solution source;

a supply line connecting the cleaning solution source to the control valve;

and

a metering pump for pumping cleaning solution from the cleaning solution source to the metering valve at a controlled pumping rate.

28. (Previously Presented) The apparatus of claim 27 wherein the cleaning solution source comprises a detergent source, a surfactant source, and/or an ozonated water source.

29. (Previously Presented) The apparatus of claim 27 further comprising a plurality of inner and outer drying gas spray nozzles, arranged to spray a drying gas outwardly and inwardly, respectively, toward the rotor.

30. (Previously Presented) The apparatus of claim 25 further comprising a return line connected between the cleaning solution supply line and the cleaning solution source, and a return line valve in the return line.

31. (Previously Presented) The apparatus of claim 25 wherein the cleaning solution source comprises a detergent source, a surfactant source, and/or an ozonated water source.